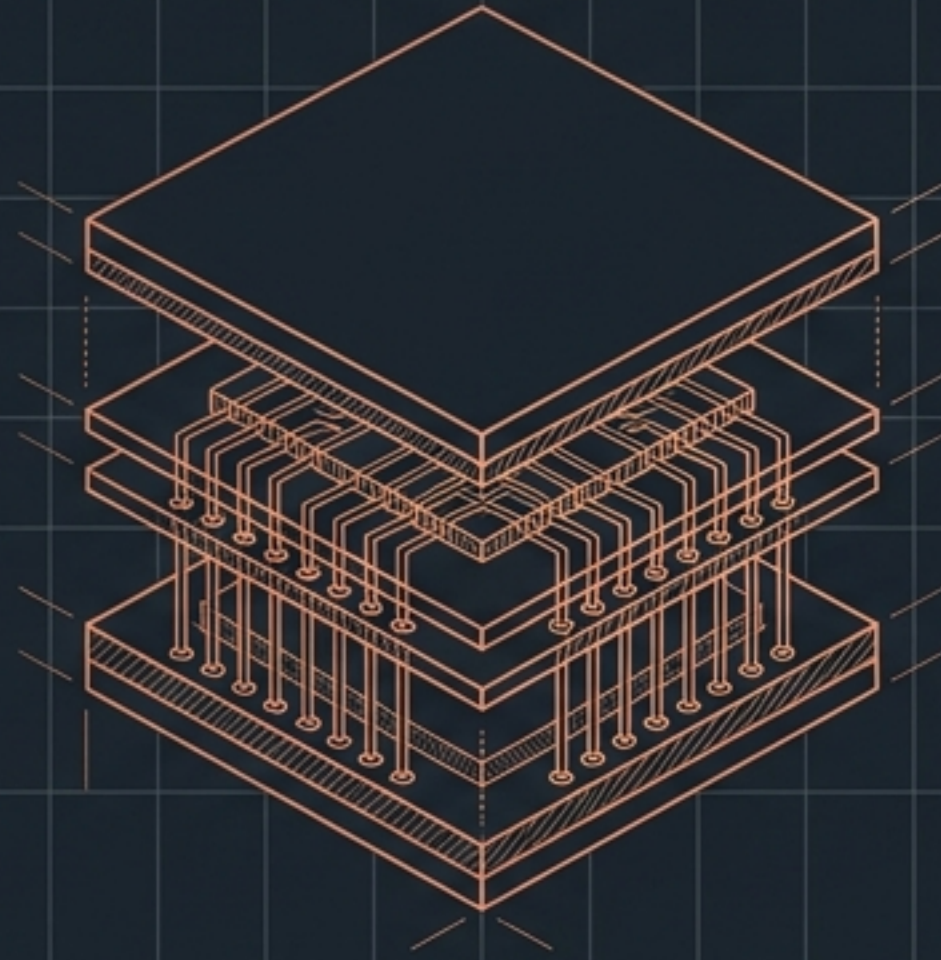


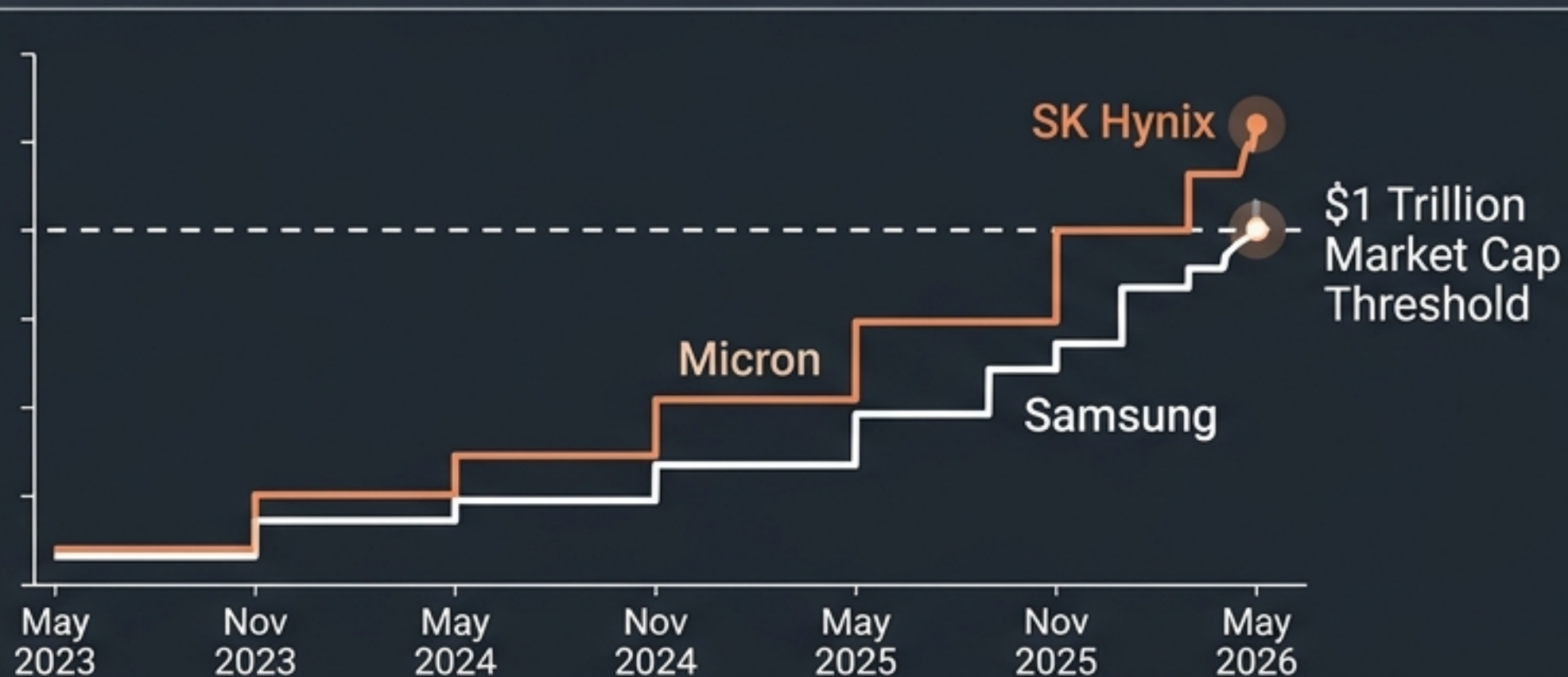


The Memory Supercycle

Separating structural reality from cyclical phantom demand
in the trillion-dollar AI memory market.

The single priciest component inside a modern AI server isn't just the logic die. At 40-50%+ of the BoM, it's the memory stacked next to it. Is this structural permanence, or the peak of a 40-year cycle?

Market Cap Trajectory: Memory Trifecta



Asset Performance: SK Hynix Breakout



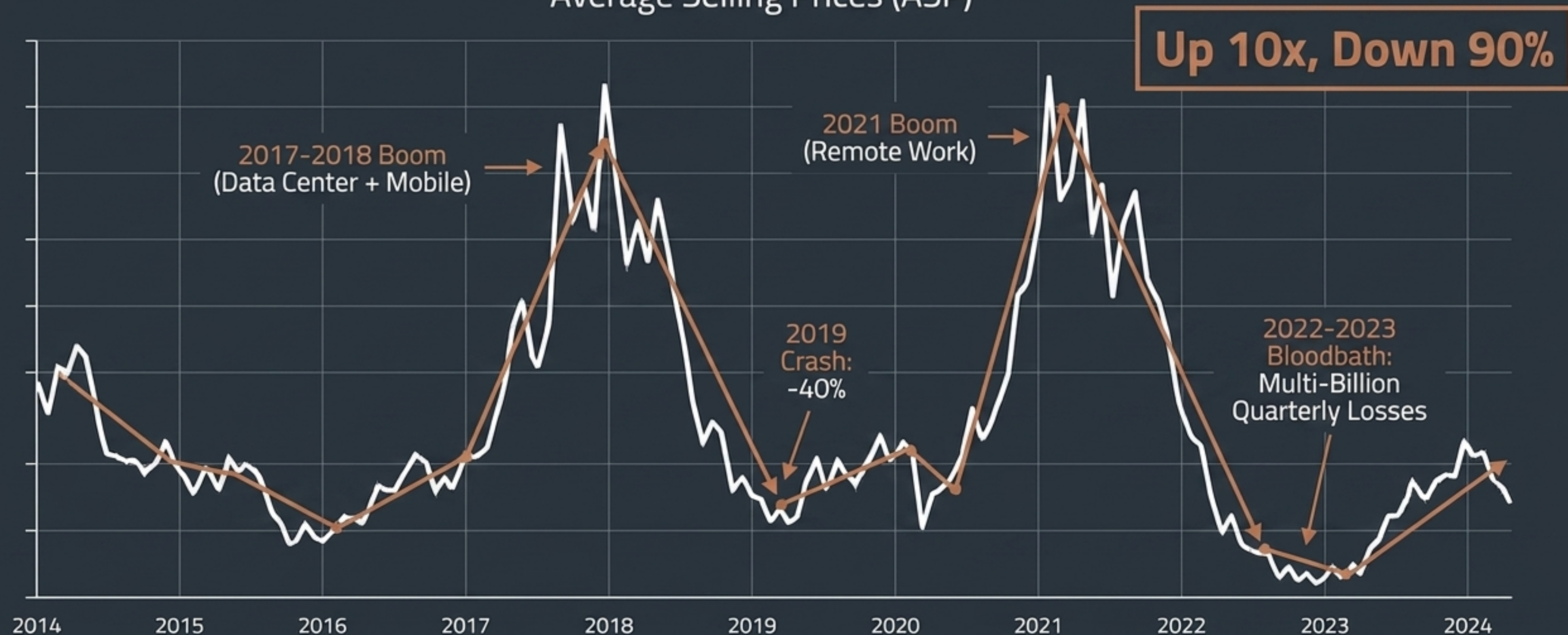
The Q1 2026 Reality

Revenue: **₩52.58T**
(+198% YoY)

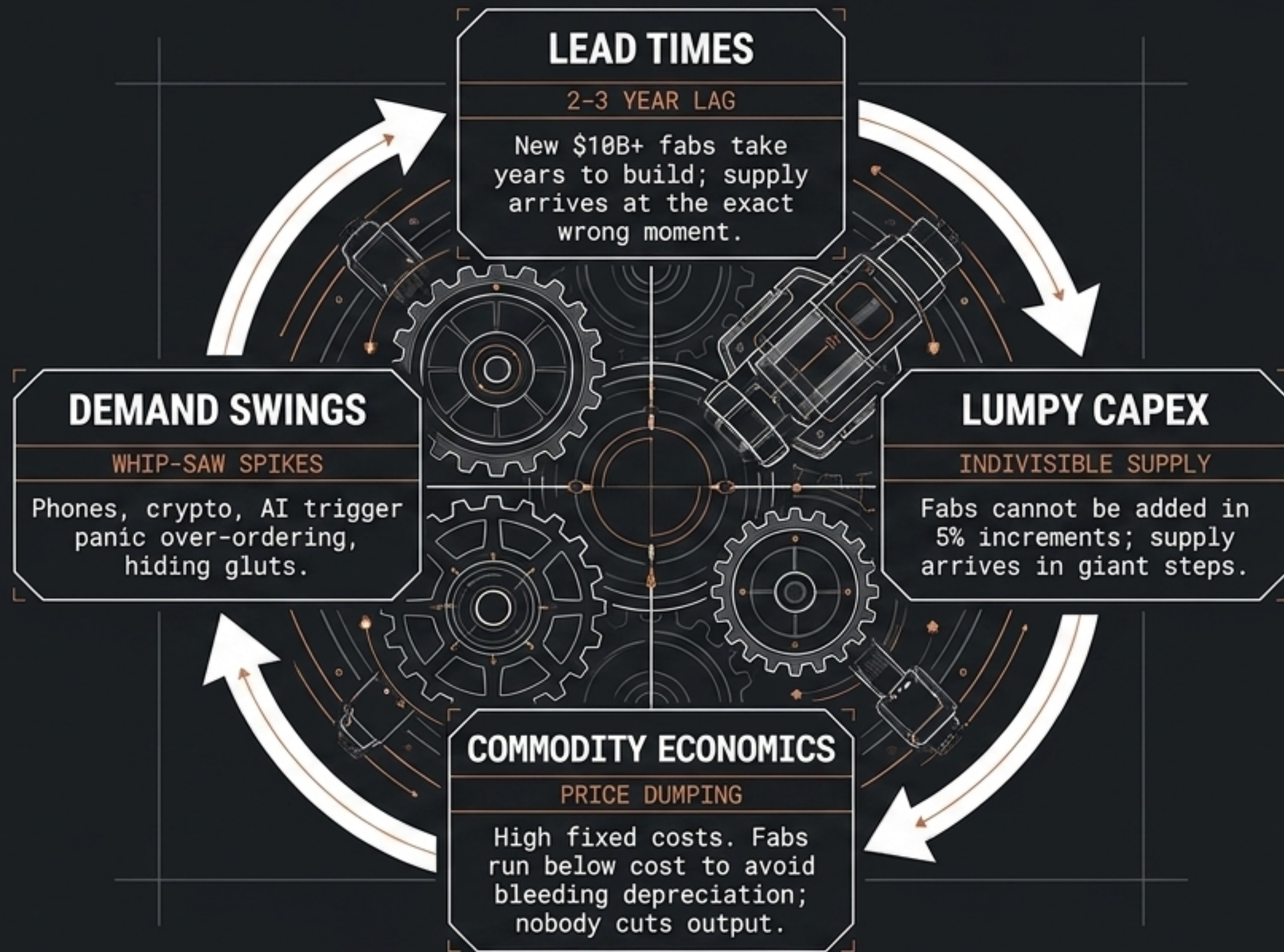
Op. Profit: **₩37.61T**
(+405% YoY)

Op. Margin: **72%**

Average Selling Prices (ASP)



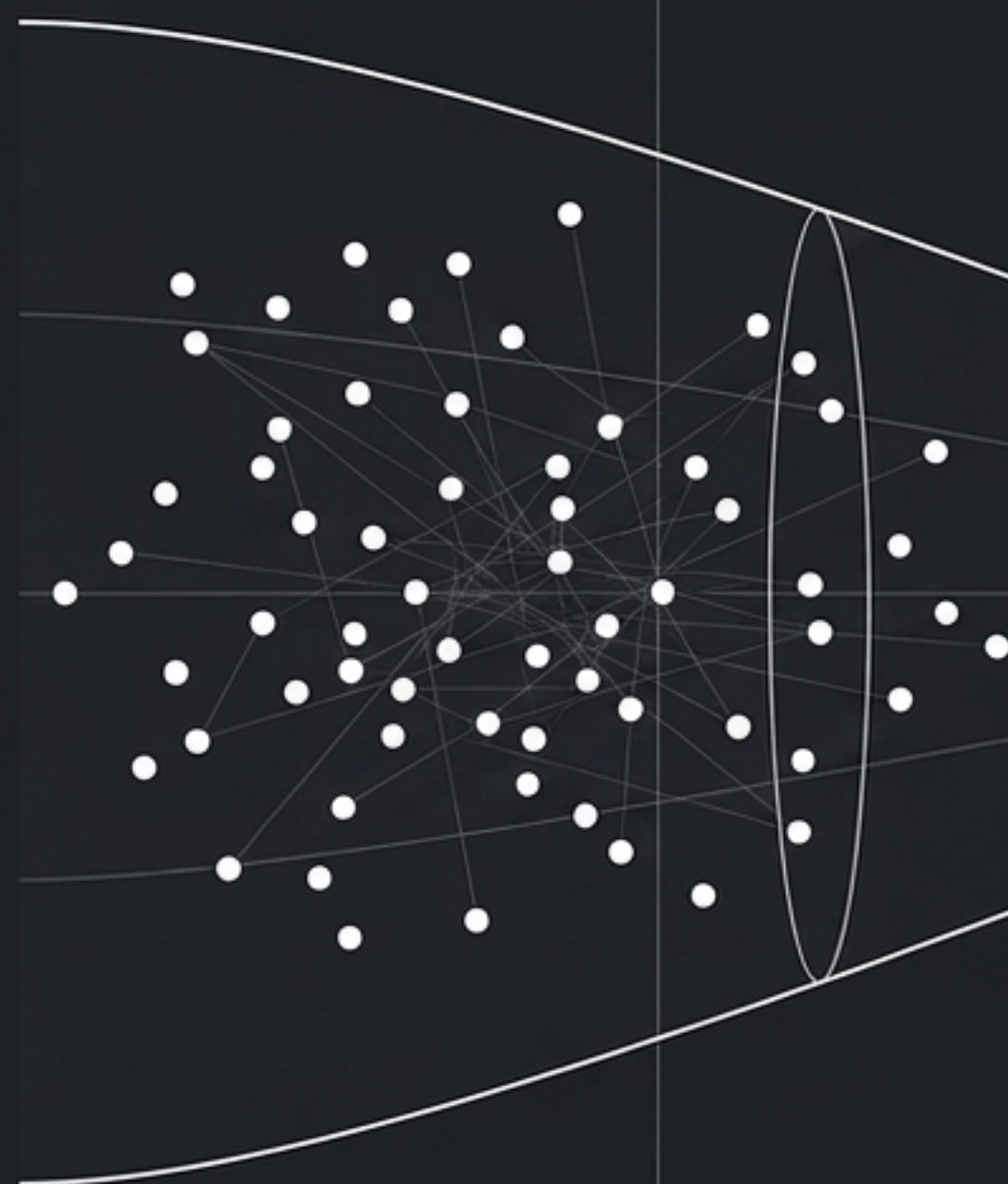
Memory is the most **violently cyclical** business in tech. Every previous peak arrived wearing a “**structural demand**” costume. Each narrative was completely plausible at the time, and each was immediately followed by a 40-50%+ **price collapse** inside 18 months.



The cycle is not driven by bad management. It is a mathematical certainty derived from the combination of high fixed-cost economics and delayed supply.

HBM

1990s: Fragmented Market



HBM

2009: Qimonda bankruptcy

DRAM makers were represented to consolidation effect of price reduction.



HBM

2013: Elpida bankruptcy / Micron absorption

Market shrinkage should consolidate the 18+ companies that remain.



SAMSUNG



SK HYNIX



MICRON

The Big 3:
95%+ Market Share (Samsung, SK Hynix, Micron)

The cycles didn't just move prices; they manufactured an oligopoly. A 20-player market is a coordination nightmare. A 3-player repeated game makes cooperative equilibrium reachable.

THE STRUCTURAL BULL CASE

1

Demand:
The Computing
Substrate

2

Discipline:
Oligopoly
Coordination

3

Contracts:
Volume,
Not Price

4

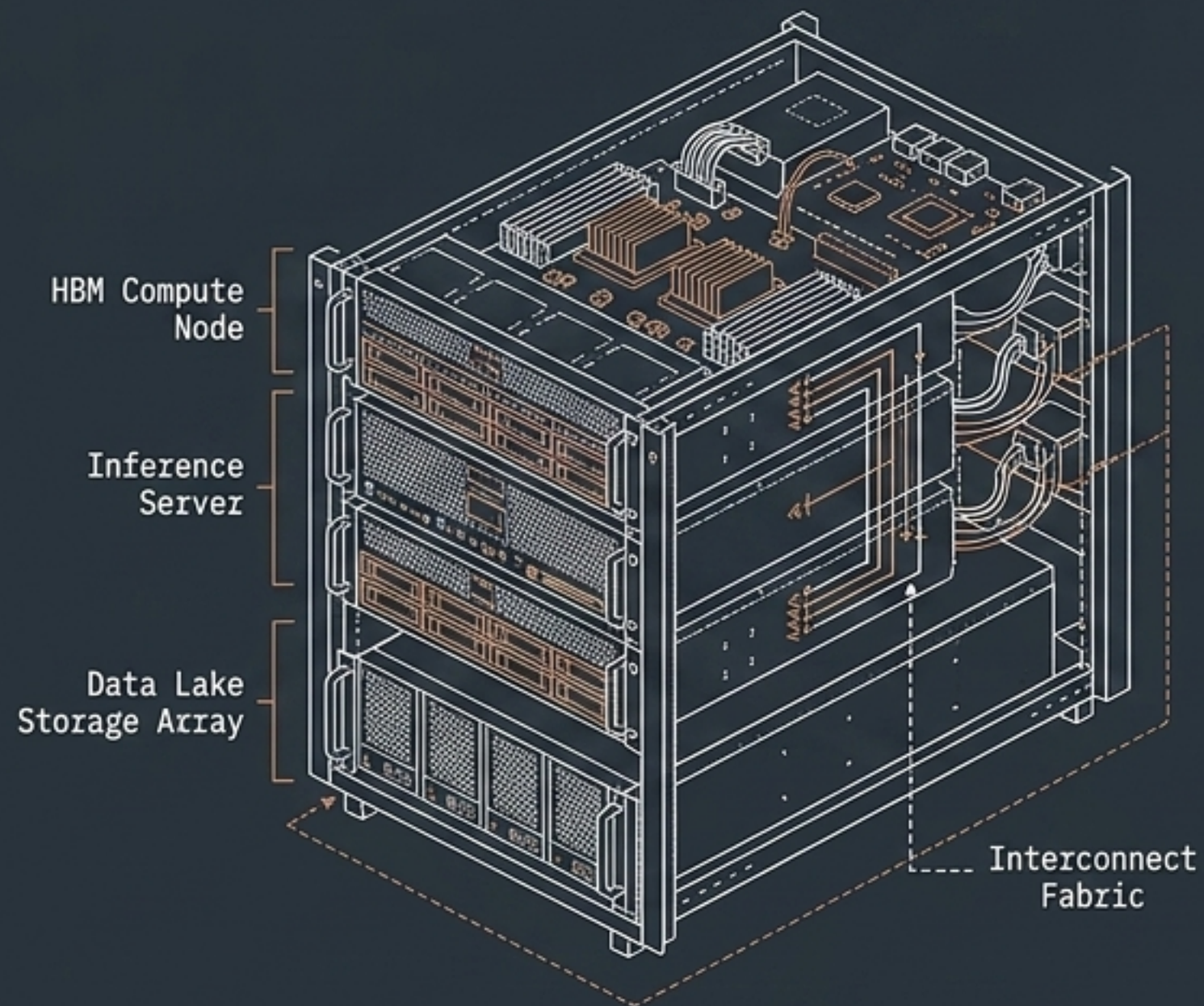
Geometry:
The HBM
Crowd-Out

5

Margins:
Decoupling
from
Commodity

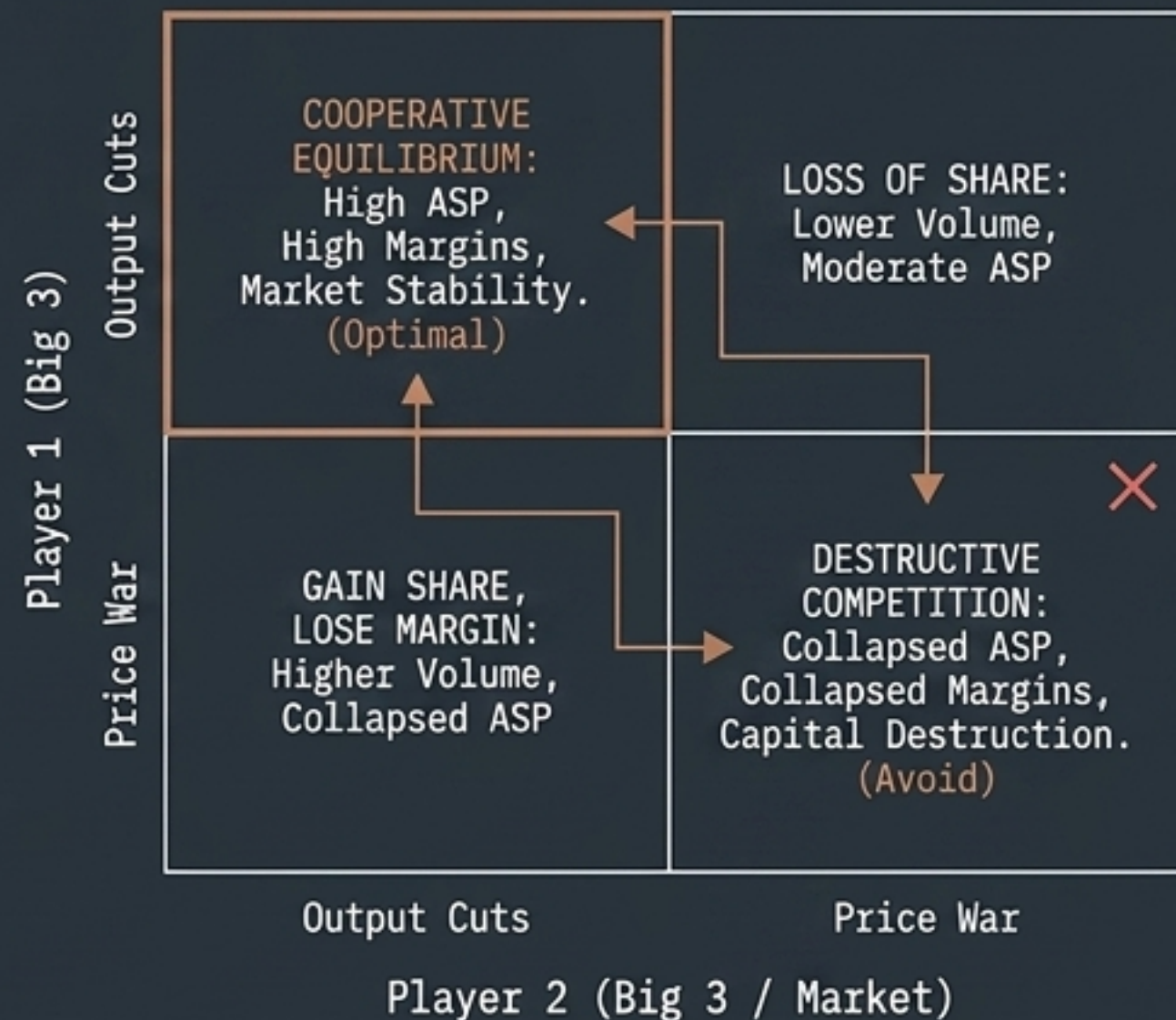
Three of the five bull arguments were simply not true in previous cycles. This is not a standard inventory cycle. To understand the trillion-dollar valuations requires accepting dilar valuations requires accepting real shifts in the underlying physics and commercial structure of memory.

Pillar 1: Structural Demand



- The Computing Substrate: Not a temporary gadget cycle.
 - HBM for Training.
 - High-Capacity Server DRAM for Inference (long-context models make memory the binding constraint).
 - Enterprise NAND for Data Lakes.

Pillar 2: Supply Discipline



- The 2023 Scar Tissue: The Big 3 are prioritizing Average Selling Price (ASP) and profit over volume share.
- Instead of a price war, output cuts were successfully coordinated to drain the 2023 glut.

Traditional Spot Order



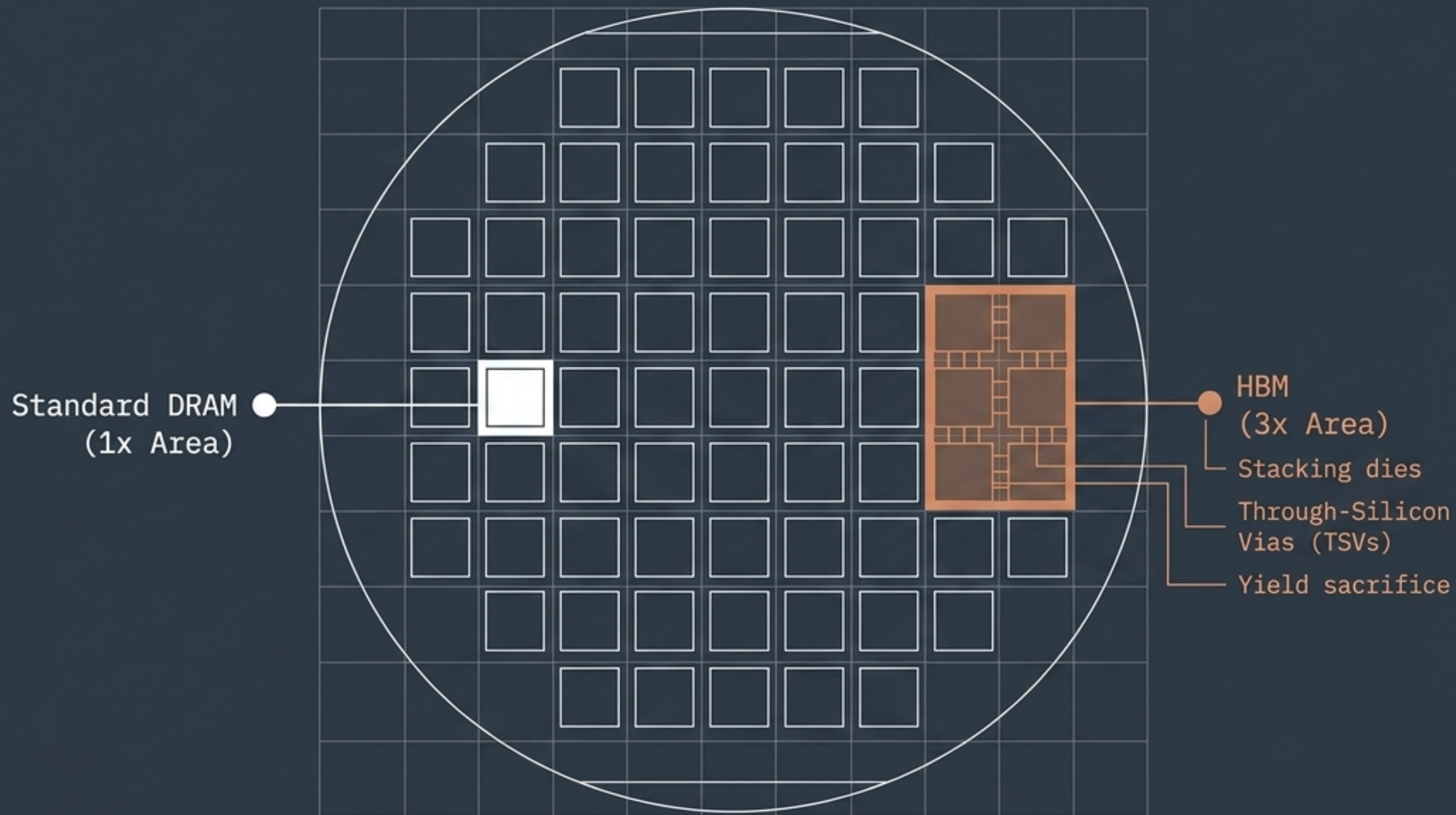
- High commercial volatility.
- Capacity built speculatively on 'hope'.

New Era Volume LTA (Long-Term Agreement)



- 锁量不锁价 (Lock Volume, Not Price).
- Hyperscalers underwrite fab capex and sign multi-year agreements for guaranteed allocation.

The classic glut comes from speculative capacity. Today's capacity is built against signed volume commitments, dampening the worst failure mode of the historical cycle.



HBM content per GPU is doubling:

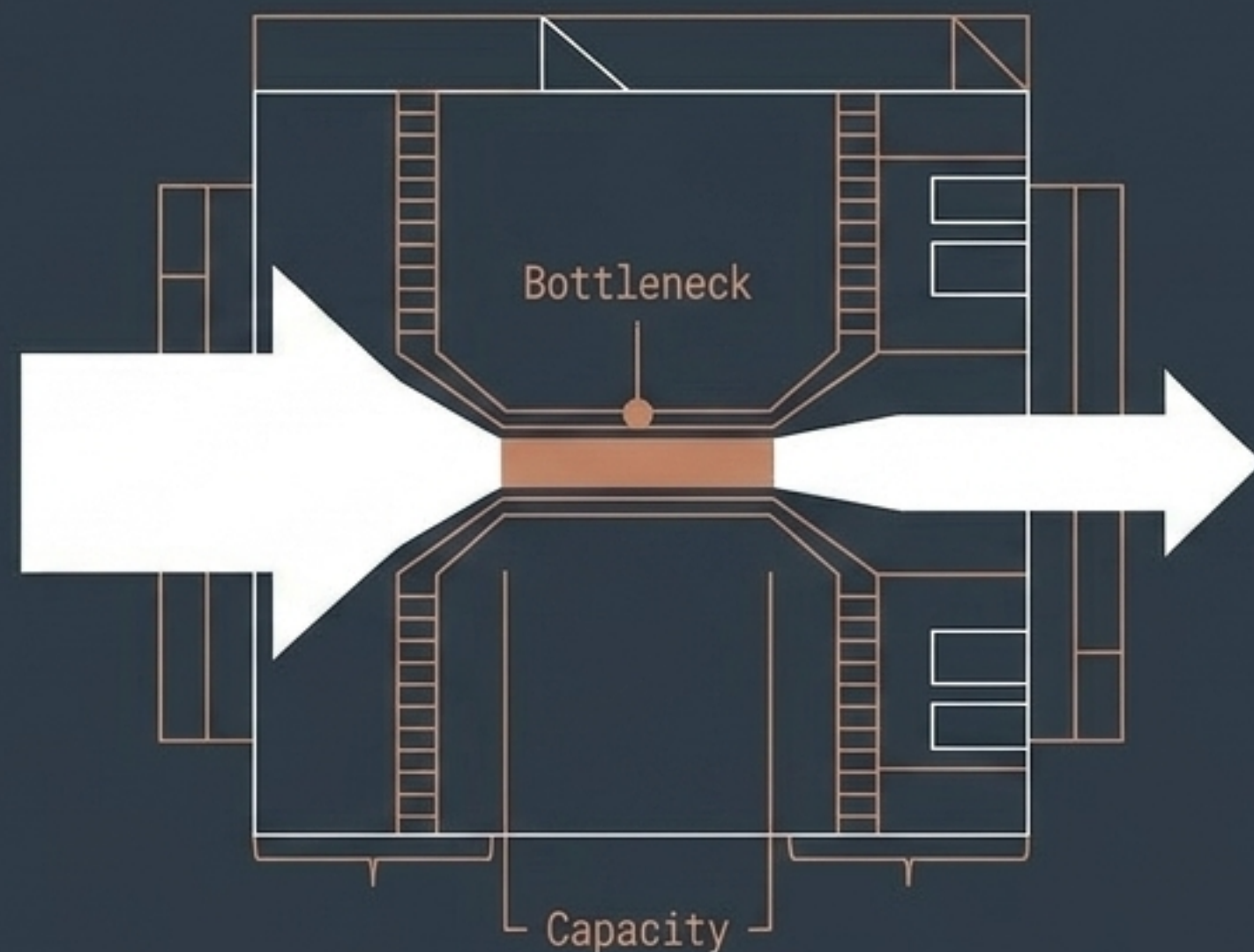
- 2022: 80GB on H100
- 2025: 288GB on B300

HBM uses roughly 3x the wafer area per bit of standard DRAM. Every wafer directed to HBM starves commodity DRAM. You saw a preview in 2025: as fabs shifted to HBM, DDR4 legacy supply panicked and prices spiked. The HBM boom *tightens* the entire

HBM Market Growth



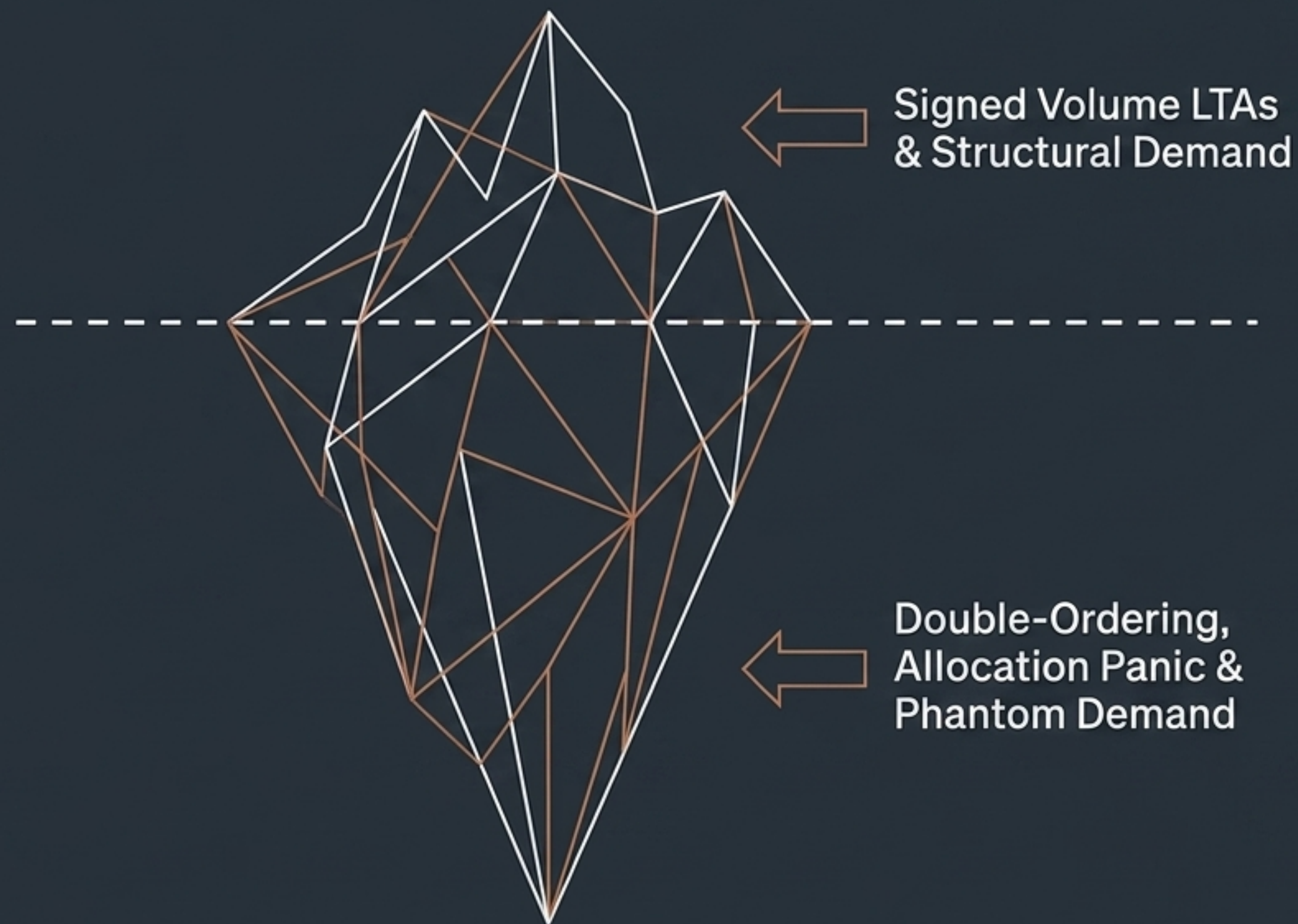
TSMC CoWoS Packaging Capacity



HBM is co-engineered, capacity-constrained at packaging (CoWoS), and commands materially higher gross margins. With SK Hynix holding 50%+ share of an HBM market consuming 20%+ of DRAM wafers, earnings quality has decoupled from the commodity floor.

A stock up 1,000% in a year is not pricing in a normal future. It is pricing in the bull case holding indefinitely. “This time is different” remains the most expensive phrase in finance.

The first rule of not losing money: argue against your own position as hard as you argued for it.



The LTA Trap:

An LTA only holds if the buyer can actually take delivery.

Panic ordering looks exactly like structural demand until it evaporates.

Capex Digestion:

The compute thesis is real, but if hyperscalers face inference-cost reckonings or ROI scrutiny, the buildout slows.

A softening order book in a commodity market gaps down; it does not glide.

TOP TRACK: THE BIG 3

HBM4
Ramping

2026

New Mega-Fabs Land

New Mega-Fabs Land

Profits are simply too high for discipline to hold forever.

2027

2028

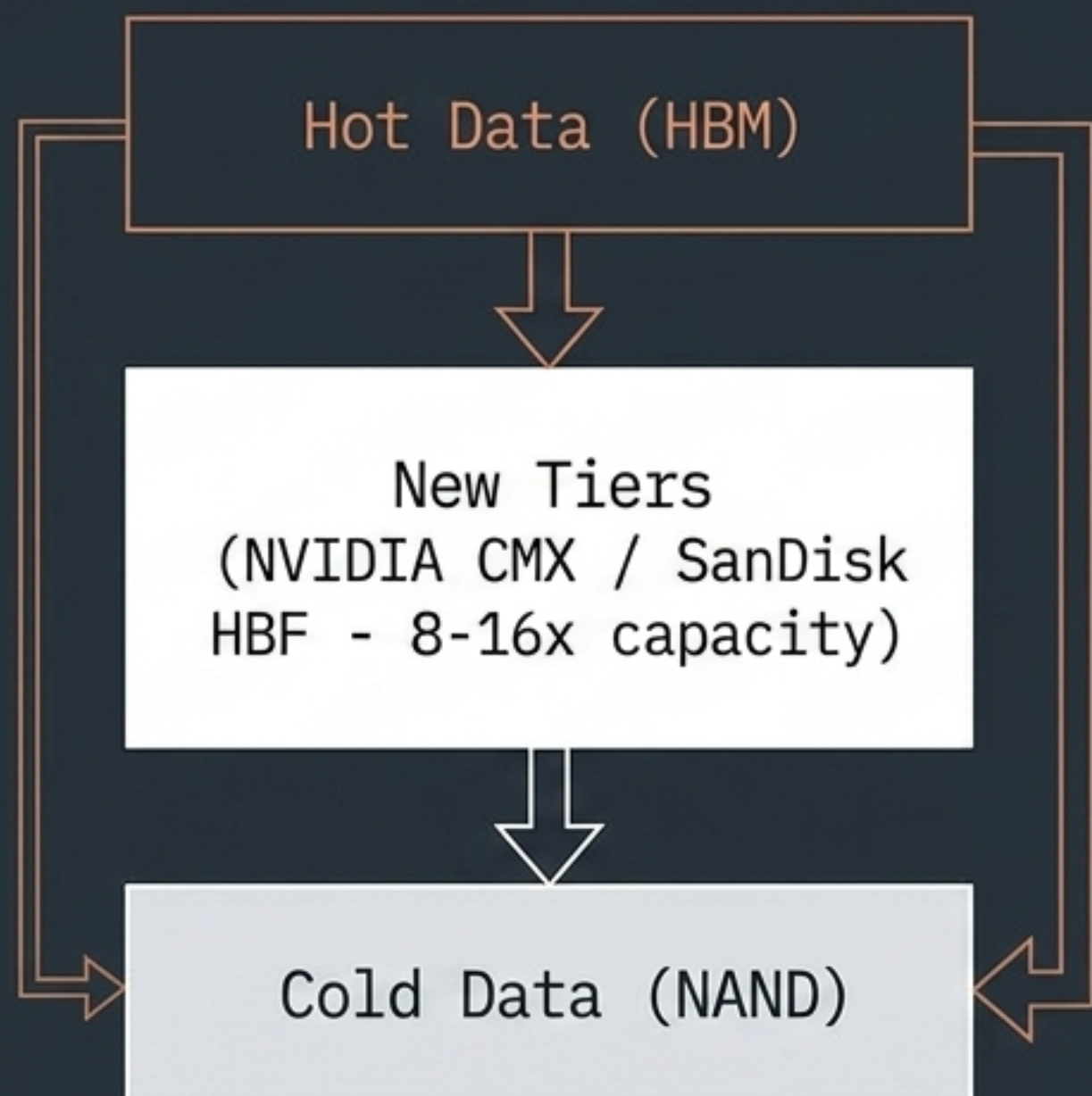
BOTTOM TRACK: THE CHINA WILDCARD

CXMT samples HBM
(Volume Production)

Huawei demand
Xiaomi stake to lock supply

A subsidized fourth entrant motivated by national self-sufficiency does not respect a price-discipline equilibrium. Even generationally-behind HBM can absorb commodity demand and ruin the Big 3's margin structure.

Threat: Architectural End-Runs



Every supply constraint invites an end-run. New tiers will shift which products carry the margin.

Threat: Mean Reversion

For 40 years, every structural thesis was ultimately collected by the cycle.

The base rate has never lost.

The Bull Argument	The Bear Counter
Demand is a structural AI computing substrate.	Hyperscaler ROI limits could force immediate capex digestion.
3-player oligopoly actively prioritizes ASP over volume.	Subsidized CXMT entry ruins cooperative equilibrium.
Volume LTAs (Long-Term Agreements) guarantee future demand.	Allocation panic creates double-ordering that hides phantom demand.
3x HBM wafer crowd-out physically limits commodity supply.	2027-2028 new mega-fabs inevitably flood the market.
HBM delivers structurally higher, non-commodity margins.	Architectural end-runs (HBF, CMX) permanently shift the margin mix.



Applying the Lobster Filter: Strip away the AI narrative.
Is the physical asset actually worth more? Unlike the AI application layer, memory has real reality underneath it. The demand is structural. The discipline is new. The HBM crown crowd-out is physics, not vibes. Three of the five pillars are genuinely changed.

Industry Quality / Structural Floor (Low to High)

●
The Dream Entry
- 2023 Trough

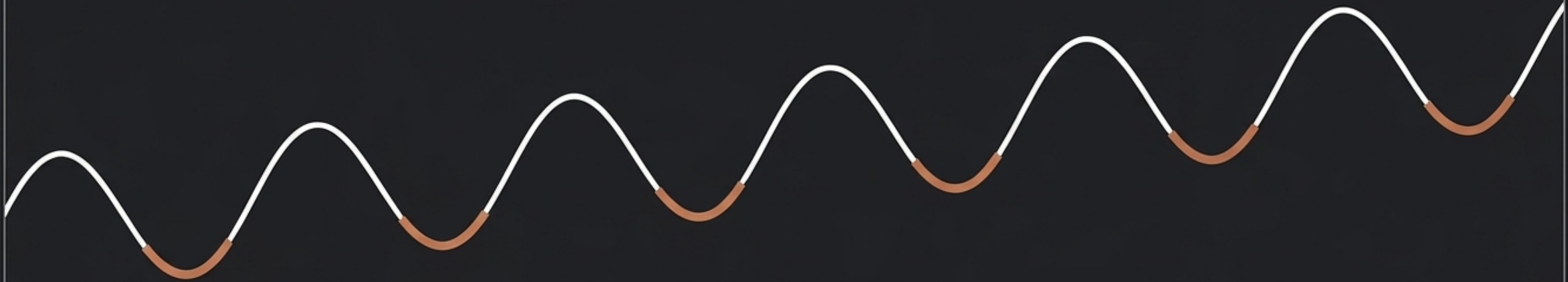


●
2010s Commodity
Memory

Asset Valuation (Cheap to 10x Priced-for-Perfection)

The most expensive error is letting a correct industry thesis launder a careless entry. A structurally improved industry (higher floor, shallower crash) is still a **dangerous investment** if the entry price assumes **zero cyclicality**.

The cycle isn't dead. It just learned to climb while it breathes.



- The trend line got steeper; the oscillation did not disappear.
- The amplitude of the next downturn will likely be smaller, and the floor structurally higher, than the 2023 bloodbath.
- The industry is durably better—but the 10x run has already priced a great deal of that reality in. Beware symmetry-blindness.